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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND INTERFERENCES

In re application of: : Art Unit: 2833
Alan C. Thomas : Examiner: A. Gilman
Serial No.: 10/008,051 : Date: March 4, 2004
Filed: November 13, 2001 :
For: *Process for Treating Previously Coated Phosphor Particles*

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BRIEF ON APPEAL

Hon. Commissioner for Patents
Alexandria, Virginia 22313
SIR:

Enclosed are three copies of a Brief in support of an appeal from the rejection of claims 1-10 in the final Office Action dated September 23, 2003, in the above-identified application.

This Brief is accompanied by the requisite fee set forth in Rule 17(c).
An oral hearing is waived.

Respectfully submitted,

Paul F. Wille

Paul F. Wille

Reg. No. 25,274

Attorney for Appellant



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BRIEF ON APPEAL

I. Real Party in Interest

The real party in interest was Durel Corporation as shown by an assignment dated November 13, 2001, and recorded at reel 012363, frame 0754. Durel Corporation was a joint venture of Rogers Corporation and 3M Corporation. As of January 1, 2004, Durel Corporation is wholly owned by Rogers Corporation and operates as a division within Rogers Corporation. Patent rights owned by Durel Corporation are being transferred to World Properties, Inc., also wholly owned by Rogers Corporation. Thus, the real party in interest is now Rogers Corporation, founded in 1832, having a principal place of business at One Technology Drive, P.O. Box 188, Rogers CT 06263-0188.

II. Related Appeals and Interferences

None

III. Status of Claims

Claims 1-10 are pending in this application.

IV. Status of Amendments

No amendments to the claims have been filed in this application.

V. Summary of Invention

The claimed invention broadly relates to phosphor particles for electroluminescent lamps. It is known to coat such particles for improved resistance to moisture, which degrades the phosphor. The claimed invention specifically relates to a second coating of phosphor particles and to a new group of materials that can be used for coating particles. The particles are coated in a fluidized bed and, among the several advantages of the invention, it is not necessary to heat the bed.

In accordance with MPEP §1206, the following table relates the appealed claims to the application as originally filed.

1. A method for treating electroluminescent phosphor having a coating of metal oxide, said method comprising the steps of:	FIG. 1
a) providing a fluidized bed of coated electroluminescent phosphor;	page 3, lines 8–11 page 4, lines 5–6
b) vaporizing water in a carrier gas to form a first gas;	page 4, lines 7–8
c) vaporizing an organotrichlorosilane compound in a carrier gas to form a second gas;	page 4, lines 7–8; FIGS. 2, 3, 4; page 5, lines 3–8
d) passing the first gas and the second gas through the fluidized bed to form a siloxane coating on the electroluminescent phosphor.	page 4, lines 15–17
2. The method as set forth in claim 1 wherein step d) is continued for approximately thirty minutes.	page 4, line 17
3. The method as set forth in claim 1 wherein said organotrichlorosilane compound consists essentially of an alkyl trichlorosilane.	page 5, line 3
4. The method as set forth in claim 1 wherein said organotrichlorosilane compound consists essentially of an aryl trichlorosilane.	page 5, line 3
5. The method as set forth in claim 1 wherein said organotrichlorosilane compound is selected from the group consisting of phenyltrichlorosilane, n-propyltrichlorosilane, and tert-butyltrichlorosilane.	FIGS. 2, 3, 4; page 4, lines 31–32
6. An electroluminescent lamp comprising:	FIG. 12
a transparent electrode;	page 10, line 4
a phosphor layer overlying said transparent electrode;	page 10, line 5–6

a dielectric layer overlying said phosphor layer; and	page 10, line 6–7
a rear electrode overlying said dielectric layer;	page 10, line 8
wherein said phosphor layer includes phosphor particles having a moisture resistant coating and a metal oxide coating overlying each phosphor particle.	page 10, line 9–10
7. The lamp as set forth in claim 6 wherein said moisture resistant coating is formed by treating the phosphor particles in a fluidized bed with a mixture of water vapor and organotrichlorosilane.	FIG. 1; page 4, lines 5–18;
8. A method for treating particles, said method comprising the steps of:	FIG. 1
a) providing a fluidized bed of the particles;	page 3, lines 8–11 page 4, lines 5–6
b) vaporizing water in a first carrier gas to form a first gas mixture;	page 4, lines 7–8
c) vaporizing an organotrichlorosilane compound in a second carrier gas to form a second gas mixture;	page 4, lines 7–8; FIGS. 2, 3, 4; page 5, lines 3–8
d) passing the first gas mixture and the second gas mixture through the fluidized bed to form a siloxane coating on the particles without applying heat to the fluidized bed or to the carrier gases.	page 4, lines 13–15
9. The method as set forth in claim 8 wherein said passing step is carried out at ambient temperature.	page 4, line 15
10. The method as set forth in claim 8 wherein the first carrier gas is the same as the second carrier gas.	page 4, lines 8–9

VI. Issues

Are claims 1–5 and 8–10 unpatentable over Budd in view of Chandra et al. under 35 USC 103?

Are claims 6 and 7 unpatentable over Klinedinst in view of Chandra et al. under 35 USC 103?

VII. Grouping of Claims

The Examiner has divided the claims between method and article. A more careful consideration is desired. Independent claim 1 recites providing coated particles for

further coating. Independent claim 8 recites vapor phase deposition without the addition of heat during the deposition. Clearly, these claims are directed to different aspects of the invention and should be considered separately from each other. Independent claim 6 relates to an article and is directed to yet another aspect of the invention. The dependent claims each recite further details that require separate consideration, except for claim 10, which stands or falls with claim 8.

VIII. Argument

MPEP §2116.01: “All the limitations of a claim must be considered when weighing the differences between the claimed invention and the prior art in determining the obviousness of a process or method claim. See MPEP §2143.03.”

[emphasis in original]

Claim 1 stands rejected as unpatentable over Budd in view of Chandra et al. Claim 1 recites “providing a fluidized bed of **coated** electroluminescent phosphor” [emphasis added]. Clearly, the Examiner has not complied with MPEP §2126.01 or §2143.03. There is no disclosure of coating a coated particle in the prior art and the matter is not addressed by the Examiner. Clearly, the Examiner is not complying with the MPEP, *Graham v. John Deere*, 148 USPQ 459 (S. Ct. 1966), or any other relevant standard.

“[T]his court requires the examiner to show a motivation to combine the references that create the case of obviousness.” *In re Rouffet*, 47 USPQ2d 1453, at 1457 (Fed. Cir. 1998).

Claim 1 was rejected as unpatentable over Budd in view of Chandra et al. The Examiner asserts that both patents “are related to chemical vapor deposition (CVD) methods.” It is not clear what is meant by “related to.” The Budd patent discloses vapor phase deposition. The Chandra et al. patent discloses CVD. As explained to the Examiner in responses to the first and final rejections, these processes are distinct, having nothing in common except the words “vapor” and “deposition.” It is respectfully submitted that the rejection is based upon a technical error.

The Budd patent relates to coating particles. The Chandra et al. patent relates to coating “substrates” [column 2, line 53–55]. The problems confronting those of ordinary skill in the art are quite different in the two technologies.

MPEP §2142: “When an applicant submits evidence, whether in the specification as originally filed or in reply to a rejection, the examiner must reconsider the

patent- ability of the claimed invention. The decision on patentability must be made based upon consideration of all the evidence, **including the evidence submitted by ... the applicant**. A decision to make or maintain a rejection in the face of all the evidence **must show that it was based on the totality of the evidence**. Facts established by rebuttal evidence must be evaluated along with the facts on which the conclusion of obviousness was reached, not against the conclusion itself. *In re Eli Lilly & Co.*, 902 F.2d 943, 14 USPQ2d 1741 (Fed.Cir. 1990)." [emphasis added]

In response to the final Office Action, appellant submitted examples from web sites showing how one of ordinary skill in the art interpreted "chemical vapor deposition" and "vapor phase deposition." This evidence was ignored. In the Advisory Action, the Examiner alleges that "using the fluidized bed technique [sic] for CVD process is suggested by the primary reference – Budd."

The Budd patent discloses the following.

The present invention utilizes a vapor phase hydrolysis reaction to form a coating of oxide material on the surfaces of the phosphor particles thereby encapsulating them. Such process is sometimes referred to as a chemical vapor deposition ("CVD") reaction." [column 6, line 29ff]

The "sometimes" does not make the assertion correct. Further, as shown by the evidence of record, those of ordinary skill in the art do not confuse the processes. The Budd patent hedges its remark with "sometimes." The Chandra et al. patent does not list vapor phase deposition as a kind of CVD. See column 7, lines 21–32. It is submitted that the Examiner is propagating error to support the rejection rather than accepting the prior art as understood by those skilled in it.

Irrespective of terminology, the process disclosed in the Budd patent and the processes disclosed in the Chandra et al. patent are vastly different. There is no way to combine the two processes in fact and there is certainly no motive to combine them under *Rouffet*.

The picking and choosing of elements has no basis in the prior art. The Examiner found the word "trichlorosilane" in the Chandra et al. patent but ignored context. The entire disclosure reads as follows.

"Precursor gases that can be used in the CVD processes include **mixtures of silanes or halosilanes such as trichlorosilane in the presence of**

tetraethylorthosilicate, alkylsilanes such as trimethylsilane and silacyclobutane.”

[column 7, lines 46–49; emphasis added]

This is the only disclosure of trichlorosilane in the Chandra et al. patent. It is respectfully submitted that the Examiner is picking words based upon appellant’s claim, contrary to the requirements of the MPEP, *Rouffet*, and *Graham*.

Organotrichlorosilane is not the same as trichlorosilane. Even given the selective reading of the prior art, there is no teaching of the invention.

There is no disclosure that a siloxane coating is formed by the process in either the Budd patent or the Chandra et al. patent. The Chandra et al. patent discloses siloxane materials as a coating [column 7, lines 50–61] but not a process for producing siloxane by hydrolysis reaction.

In the final Office Action, in response to appellant’s argument that the disclosure of the Chandra et al. patent relates to substrates, the Examiner alleges that “claim 1 does not claim an area of application of the coating claimed.” The allegation is not entirely clear but it is noted that claim 1 recites “A method for treating electroluminescent phosphor having a coating of metal oxide” and “providing a fluidized bed of coated electroluminescent phosphor.” If this is not an “area of application”, perhaps the Examiner could explain what is.

Claim 2 stands rejected as unpatentable over Budd in view of Chandra et al. The Examiner alleges that the Chandra et al. patent discloses passing the gases through a fluidized bed for “about 30 minutes.” The Chandra et al. patent does not disclose a fluidized bed. Therefore, the allegation has no basis in the prior art. What the Chandra et al. patent *does* disclose is the following.

“Thermal CVD comprises depositing the coating by passing a stream of a desired precursor gas over a heated substrate, when the precursor gas contacts the hot surface, it reacts and deposits the coating. Substrate temperatures in the range of 25 to 1,000° C. are sufficient to form the coating in several minutes to several hours, depending on the precursor gas and thickness of the coating. Reactive metals can be used in this process to facilitate deposition.” [column 7, lines 32–39]

A range of several minutes to several hours is not a teaching of 30 minutes and is certainly not a credible teaching when the only examples given have times of one hour and three hours. Further, the times disclosed relate to a completely different process and are, therefore, irrelevant to a process using a fluidized bed. It is like

saying that it takes twelve minutes to hard boil an egg, therefore it is obvious to cook an egg for twelve minutes in a microwave oven.

Claim 3 stands rejected as unpatentable over Budd in view of Chandra et al. The Examiner does not discuss claim 3, contrary to MPEP §2116.01 and §2143.03. Claim 3 recites a particular compound that is not disclosed or suggest by in the prior art applied.

Claim 4 stands rejected as unpatentable over Budd in view of Chandra et al. The Examiner does not discuss claim 4, contrary to MPEP §2116.01 and §2143.03. Claim 4 recites a particular compound that is not disclosed or suggest by in the prior art applied and different from the compound recited in claim 3.

Claim 5 stands rejected as unpatentable over Budd in view of Chandra et al. The Examiner does not discuss claim 5, contrary to MPEP §2116.01 and §2143.03. Claim 5 recites a Markush group that is not disclosed or suggest by in the prior art applied and different from the compounds recited in claims 3 and 4.

Claim 6 stands rejected as unpatentable over Klinedinst et al. in view of Chandra et al. Claim 6 recites, inter alia, "said phosphor layer includes phosphor particles having a moisture resistant coating and a metal oxide coating overlying each phosphor particle." The Klinedinst et al. patent discloses a hydrolized aluminum coating. The CAFC has held that this is not a metal oxide coating; *Durel Corp. v. Osram Sylvania Inc.*, 59 USPQ2d 1238 (Fed. Cir. 2001). Thus, the rejection is based upon an error in fact.

The Chandra et al. patent cannot be combined for all the reasons given above with respect to claim 1.

Claim 7 stands rejected as unpatentable over Klinedinst et al. in view of Chandra et al. The Examiner does not discuss claim 7, contrary to MPEP §2116.01 and §2143.03. Claim 7 recites a particular moisture resistant coating that is not disclosed or suggest by in the prior art applied.

Claim 8 stands rejected as unpatentable over Budd in view of Chandra et al. The Examiner does not discuss claim 8, contrary to MPEP §2116.01 and §2143.03. Claim 8 recites performing the fluidized bed reaction without adding heat. This aspect of the invention is not disclosed or suggest by the prior art.

There is no analysis of claim 8 under *Graham*.

There is no justification for the combination as required by *Rouffet*.

There is no basis in fact for combining the unrelated technologies represented by the Budd patent and the Chandra et al. patent.

There is no basis for picking one item out of the disclosure of the Chandra et al. patent other than appellant's claim, especially when that item is taken out of context.

Claim 9 stands rejected as unpatentable over Budd in view of Chandra et al. With respect to claim 9, the Examiner alleges that "Budd when modified by Chandra et al. disclose (Budd) an [sic] process at ambient temperature (Abstract, lines 4–7). The Examiner does not explain how the process disclosed in the Budd patent is "modified" by the process disclosed in the Chandra et al. patent. For the reasons given above, this is technically impossible.

The Abstract of the Budd patent discloses "a temperature of between about 25°C. and about 170°C., preferably between about 100°C. and about 150°C" for the hydrolysis reaction. These ranges are repeated in the rest of the specification. It is respectfully submitted that this disclosure does not teach "ambient" temperature, as the term is used on earth. 25°C. is mentioned as the lower limit of a range but no examples support the limit. On the contrary, no example in the Budd patent discloses a temperature below 128°C. Further, the disclosure of Budd must be taken as a whole. When read correctly, there is no suggestion of ambient temperature.

Claim 10 stands rejected as unpatentable over Budd in view of Chandra et al. The Examiner does not discuss claim 10, contrary to MPEP §2116.01 and §2143.03. The Budd patent discloses (FIG. 1) carrier gas 2 being applied to both bubblers. Thus, claim 10, and all the dependent claims, distinguishes over the prior art for the many reasons that their respective parent claims distinguish over the prior art.

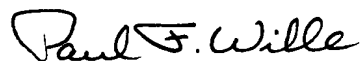
IX. Summary

It is respectfully submitted that in rejecting the claims, the Examiner has ignored express claim recitations, ignored evidence of record, ignored relevant decisions by the Federal Circuit and the Supreme Court, ignored the MPEP, attempted to combine unrelated disclosures, and ascribed disclosure to the prior art that simply is not there.

X. Conclusion

In view of the foregoing arguments, it is respectfully submitted that the rejection of claims 1–10 is in error and should be reversed.

Respectfully submitted,

A handwritten signature in black ink that reads "Paul F. Wille". The signature is written in a cursive style with a large, stylized "P" and "W".

Paul F. Wille

Reg. No. 25,274

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1. A method for treating electroluminescent phosphor having a coating of metal oxide, said method comprising the steps of:
 - a) providing a fluidized bed of coated electroluminescent phosphor;
 - b) vaporizing water in a carrier gas to form a first gas;
 - c) vaporizing an organotrichlorosilane compound in a carrier gas to form a second gas;
 - d) passing the first gas and the second gas through the fluidized bed to form a siloxane coating on the electroluminescent phosphor.
2. The method as set forth in claim 1 wherein step d) is continued for approximately thirty minutes.
3. The method as set forth in claim 1 wherein said organotrichlorosilane compound consists essentially of an alkyl trichlorosilane.
4. The method as set forth in claim 1 wherein said organotrichlorosilane compound consists essentially of an aryl trichlorosilane.
5. The method as set forth in claim 1 wherein said organotrichlorosilane compound is selected from the group consisting of phenyltrichlorosilane, n-propyltrichlorosilane, and tert-butyltrichlorosilane.
6. An electroluminescent lamp comprising:
 - a transparent electrode;
 - a phosphor layer overlying said transparent electrode;
 - a dielectric layer overlying said phosphor layer; and
 - a rear electrode overlying said dielectric layer;wherein said phosphor layer includes phosphor particles having a moisture resistant coating and a metal oxide coating overlying each phosphor particle.

7. The lamp as set forth in claim 6 wherein said moisture resistant coating is formed by treating the phosphor particles in a fluidized bed with a mixture of water vapor and organotrichlorosilane.

8. A method for treating particles, said method comprising the steps of:

- a) providing a fluidized bed of the particles;
- b) vaporizing water in a first carrier gas to form a first gas mixture;
- c) vaporizing an organotrichlorosilane compound in a second carrier gas to form a second gas mixture;
- d) passing the first gas mixture and the second gas mixture through the fluidized bed to form a siloxane coating on the particles without applying heat to the fluidized bed or to the carrier gases.

9. The method as set forth in claim 8 wherein said passing step is carried out at ambient temperature.

10. The method as set forth in claim 8 wherein the first carrier gas is the same as the second carrier gas.